

Work Order ID 81284

81284

Page 1

March-12-12 3:54:33 PM

Item ID: D206-642-641

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Replacement Skidtube

Start Date: 12/03/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 26/03/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 12/03/12

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3288	Rev G								

100

0.00

100

DC

0.00

Document Control

Memo

Photocopy bluefile and create labels per PPP D206-642-641
CHG003

N/A

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 81284

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

110

0.00

110

Skidtubes

Skidtubes

Memo

0.00

1-Debur FWD edge of tube, grind bending marks.

2-Remove ridge on inside of fwd edge of tube as per Dwg D3288.

3-Weld Fwd Cap as per Dwg D3288, Grind to obtain proper fit

A/R AL ROD Batch: M120164

4-Grind welds flush to cap on top surface only.

5-Cut Aft end as per Dwg D3288 from front of tube then deburr ✓

6-Remove inner indexing ridge on aft end as per Dwg d3288 ✓

7-Open holes for aft cap as per Dwg D3288 using Dt8025 ✓

8-Drill pilot holes using DT8818 ✓

9- open float holes section J-J (6 per side) to 0.297" and aft cap holes to 0.208" ✓

10-Insert D3286-1 doubler using DT8732 & DT8879, then locating doubler off the 3/16" holes cleco D3286-1 doubler remove DT8879 ✓

11-Working from center out, drill #30 holes into D3286-1 Doubler, cleco each hole after its drilled, Verify angle of holes to accomodate rivet heads. ✓

12-Install DT8879 to hold doubler. Remove DT8732 then cleco doubler with #30 clecos. Remove DT8879 open GHW to 0.500" ✓

SAD 12-04-02

BE 12-04-02

SAD 12-04-03

W/O:		WORK ORDER CHANGES						
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Required Date: 26/03/2012 Req'd Qty: 1.00

1

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

13-Remove D3286-1 doubler, identify orientation, deburr then attach to W/O

14-Remove indexing edge as per Dwg D3288.

15-C'sink rivet holes as per Dwg D3288.

SAN 12-04-03

120

QC5- Inspect part completeness to step on W/O

0.00

120

QC

Memo

0.00

Quality Control

Scrub 12-04-03

7/6 12-4-3

130

Chemical Conversion Coat per QSI005 4.1

0.00

130

HandFinish

Memo

0.00

Hand Finishing

① 12-04-03
7/6 12-4-3

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

140

QC7-Inspect Chemical Conversion Coat

0.00

140

QC

Memo

0.00

Quality Control

① SAO 12-04-03

150

0.00

150

Skidtubes

Memo

0.00

Skidtubes

1-Open Holes to finished size as per DWg D3288. Debur.

2-Locate, install and rivet doublers using DT8879 as per Dwg D3288. Micro-shave rivets as required.

3-Bond web in place as per Dwg D3288 & QSI 015.
A/RSikaflex-291 7m 720 813

Sikaflex expire date: 2012-08-13
Start: 12-30 Time: 12-4-10 / 7:00
Finish: 12-04-11 Time: 3:30
(Adhere for 12 hours)

SAO 12-04-04
CF 12-4-10

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Cust Item ID:

Required Date: 26/03/2012 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC5- Inspect part completeness to step on W/O	0.00							
160									
QC	Memo	0.00							
Quality Control									
170		0.00							
170									
CNC Bend 1	Memo	0.00							
CNC Delta 100 Bender	Bend tube using program D3288 as per Dwg D3288. Install drop pins in cross bolt spacer holes to maintain web position.								

1 0 BE 12/04/11

1 SAO 12-04-11

W/O:		WORK ORDER CHANGES					
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Start Date: 12/03/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 26/03/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180		0.00							

180

Skidtubes

Skidtubes

Memo

0.00

1-Drill pilot holes for wearplates using D3288-T2 as per Dwg D3288, then open to Ø0.297". (without cutting fluid)
DEBURR INSIDE OF HOLE AS NECESSARY (DO NOT ENLARGE HOLES)

2-C'sink X-bolt holes.

3-Deburr and remove alodine as required for welding

DC 12/04/11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Work Order ID 81284

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Item ID: D206-642-641

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N900040100

Setup Start

NS1

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Stop

NS2

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Start Date: 12/03/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 26/03/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Run Start

NR1

Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop

NR2

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

190

0.00

190

Skidtubes

Skidtubes

Memo

0.00

1-Insert D2649 & D3275-1 crossbolt spacers. Weld as per QSI 004 and Dwg D3288. Remember to back drill each hole before welding the other side. Use aluminum rod.

A/RAluminum Rod *M120/64 BE 12/04/17*

2-Using DT8733, insert (2) D3286-3 spacers as per QSI 004 and Dwg D3288. Remember to back drill each hole to Ø0.402" before welding other side. Use SS rod as required

A/RSS Rod *NONE BE 12/04/18*

3-Grind cross bolt welds flush as per Dwg D3288. Masking Tape access to inside of the skidtube

4-Counterbore 5/16" x 0.750" deep using DT8747, except 8th cross bolt hole from Aft end, as per Dwg D3288.

B/CC 12-4-18

B/CC 12-4-19

200

QC5- Inspect part completeness to step on W/O

0.00

200

QC

Quality Control

Memo

0.00

517/64/15

QC10

→

512/64/15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Work Order ID 81284

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March-12-12 3:54:33 PM

Item ID: D206-642-641

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N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Replacement Skidtube

Start Date: 12/03/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 26/03/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

210

QC9- Inspect visual per QSI004- Fusion Welds

0.00

210

QC

Memo

0.00

Quality Control

1x  12-04-19

220

Chemical conversion

0.00

220

HandFinish

Memo

0.00

Hand Finishing

76 12-4-20

230

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

230

Powdercoat

Memo

0.00

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

2-15
320 °F
2-45

1x  12/04/23

M121134

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 12/03/2012 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 26/03/2012 Req'd Qty: 1.00 * 1 *

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

240 QC3- Inspect Part Finish

0.00

240

QC Memo

0.00

Quality Control

250	0.00
-----	------

250

HandFinish

Hand Finishing

Memo

0.00

1-Install D3415-041 Nut Plate as per Dwg D3288 ,Install with LPS *Procyon*

A/R LPS Batch: ~~99~~ 114596

Procession

2-Install inserts Dwg D3288. Use a drop of Sikaflex inside insert holes

A/RSikaflex-29I 12/22/

Sikaflex expire date: 13/10

260	QC5- Inspect part completeness to step on W/O	0.00
-----	---	------

260

QC

Quality Control

Memo

0.00

W/O:		WORK ORDER CHANGES					
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N900040100

Setup Start *NS1*

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Start Date: 12/03/2012 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 26/03/2012 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

**Insp.
Stamp**

0,00

270

HandFinish

Hand Finishing

Memo

0,00

1-Install wearshoes/wearpads & Gaskets as per Dwg D3288.

2-Install Ring on Nut Plate as per detail F & Dwg D3288.

3-Spray inside tube with LPS-3 on both sides of web

4-Install D2646 Aft Cap and seal with Sikaflex. Clean excess adhesive.

A/R Sikaflex-291 12/22/

Sikaflex expire date: 13/01

5-Coat all exposed fastners with LPS Procyon,remove any exess on powder coat with MEK Degreasser.

A/R LPS Procyon Batch: 114596

QC5- Inspect part completeness to step on W/O	0.00
---	------

280

QC

Quality Control

Memo

0.00

W/O:		WORK ORDER CHANGES					
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Setup Start ***NS1***

Revision ID:

Stop ***NS2***

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Start Date: 12/03/2012 Start Qty: 1.00

1

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Required Date: 26/03/2012 Req'd Qty: 1.00

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
290		0.00							
290									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-642-641								
	Location: _____								
	PPP Rev: _____								
300	QC21- Final Inspection - Work Order Release	0.00							
300									
QC	Memo	0.00							
Quality Control									

PPP 81282

12/5/10

12/5/10

MF 12-05-10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Picklist Print

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Work Order ID: 81284

81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:B05.11.15 Added washers for aft cap, wearshoes and ringEC
 IPP Rev:C 06-05-31 Revised steps JLM
 IPP Rev:D 07-02-22 Added SS Wearplates & Gaskets JLM
 IPP Rev:E 07-12-06 ECN 1080p DD verified by:ec
 IPP Rev:F 08-04-17 as per PAR 08-015 DD verified by:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2620		Manufactured	No			110	Each	16.0000	1	1			

D2620

Skidtube, 206 Skidtube

**

SAD 12-04-02

Location

Loc Qty

Loc Code

LG

16

77999

1

78000

3

79543

2

79544

8

79545

2

B81365

1

D2647

Manufactured No

110

Each

51.0000

1

1

D2647

Cap

**

BE 12-04-02

Location

Loc Qty

Loc Code

LG002

51

75482

51

1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3286-1 Manufactured No

110 Each

159.0000

2

2

D3286-1

Doubler

**

SAD 12-04-09

Location

Loc Qty

Loc Code

LG002

271

74872

6

78014

67

79556

80

ST046

-112

76772

6

CR3212-4-04

Purchased No

150

Each

6,443.000

52

52

CR3212-4-04

Cherry Rivet

**

SAD 12-04-04

Location

Loc Qty

Loc Code

ST331

168

116471

78

117816

3

118686

1

118840

16

119017

60

119075

10

st510

6275

119075

6275

D3289-041

Manufactured No

150

Each

0.0000

1

1

D3289-041

Float Web (206A/B)

**

① CF 12.4.9

B82652

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Shop Packet Print

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Picklist Print

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81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

D2649

Manufactured No

190

Each

1,591.000

9

9

D2649

Cross Bolt Spacer

**

BE 12/04/17
B79564 * 9

Location

Loc Qty

Loc Code

LG

1134

77574

2

79502

403

79503

399

79504

69

79565

261

LG001

457

65317

1

68224

2

68507

11

71355

2

72704

2

72841

11

73390

8

73857

21

73858

53

73859

4

73860

4

78020

6

78583

2

79566

330

March-12-12 3:54:37 PM

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Page 3

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 4

Work Order ID: 81284

81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3275-1 Manufactured No

190 Each 307.0000 6 6

D3275-1

Crossbolt Spacer

**

BE 12/04/17

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	103	
80184	103	
LG002	204	
66930	106	6
73393	46	
74437	52	

D3286-3 Manufactured No

190 Each 97.0000 2 2

D3286-3

Spacer

**

BE 12/04/18

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	3	
78015	3	
LG001	94	
74117	1	
79557	93	2

D3415-041 Manufactured No

250 Each 22.0000 1 1

D3415-041

Nut Plate

**

1 (2P) 12/04/25

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST042	22	
67605 ✓	22	

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Page 4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 5

Work Order ID: 81284

81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

CCR264SS3-3

Purchased

No

250

Each

693.0000

2

2

CCR264SS3-3

Cherry Rivet

**

2

(2P)

12/04/25

Location

Loc Qty

Loc Code

ST331

693

113973

2

117849 ✓

125

119017

566

CR3212-4-03

Purchased

No

250

Each

1,466.000

2

2

CR3212-4-03

Cherry Rivet

**

2

(2P)

12/04/25

Location

Loc Qty

Loc Code

FP002

476

114859 ✓

476

ST331

990

110139

2

119017

988

ALS7-1032-130

Purchased

No

250

Each

2,390.000

64

64

ALS7-1032-130

Insert

**

64

(2P)

12/04/25

Location

Loc Qty

Loc Code

ST280

317

117717

27

118966

22

119775

268

ST282

2073

119530

73

120181

2000

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Page 5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 6

Work Order ID: 81284

81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3535-15

Manufactured No

270

Each

26.0000

1

1

D3535-15

Wearshoe

1

SP

12/04/25

LocationLoc QtyLoc Code

FP001

26

73315

2

74512

12

80328 ✓

12

D3535-21

Manufactured No

270

Each

25.0000

1

1

D3535-21

Wearshoe

1

SP

12/04/25

LocationLoc QtyLoc Code

FP001

7

70380

1

80329

6

FP002

18

78987 ✓

18

D3535-35

Manufactured No

270

Each

35.0000

1

1

D3535-35

Wearshoe

1

SP

12/04/25

LocationLoc QtyLoc Code

FP001

35

67598

1

70815

1

78873

13

79849

1

80332

19

March-12-12 3:54:37 PM

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Page 6

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 7

Work Order ID: 81284

81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3535-41

Manufactured No

270

Each

11.0000

1

1

D3535-41

Wearshoe

**

1 (2P) 12/04/25

Location

Loc Qty

Loc Code

FP001

11

42256 ✓

11

D3536-15

Manufactured No

270

Each

28.0000

1

1

D3536-15

Gasket

**

1 (2P) 12/04/25

Location

Loc Qty

Loc Code

FP002

28

73318 ✓

16

80333

12

D3536-21

Manufactured No

270

Each

23.0000

1

1

D3536-21

Gasket

**

1 (2P) 12/04/25

Location

Loc Qty

Loc Code

FP002

23

70464

1

78966 ✓

22

D3536-35

Manufactured No

270

Each

36.0000

1

1

D3536-35

Gasket

**

1 (2P) 12/04/25

Location

Loc Qty

Loc Code

FP002

36

74511

9

80335 ✓

27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 8

Work Order ID: 81284

81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3536-41

Manufactured No

270 Each

13.0000 1 1

D3536-41

Gasket

**

1 (2P) 12/04/25

LocationLoc QtyLoc Code

FP002

13

37353

1

51646 ✓

12

D3537-1

Manufactured No

270 Each

151.0000 7 7

D3537-1

Wearpad

**

7 (2P) 12/04/25

LocationLoc QtyLoc Code

FP001

104

79833

50

79835

54

FP002

47

69817

5

79834

42

D3537-3

Manufactured No

270 Each

18.0000 1 1

D3537-3

Wearpad

**

1 (2P) 12/04/25

LocationLoc QtyLoc Code

FP002

18

74500

13

76986

5

March-12-12 3:54:37 PM

Shop Packet Print

Page 8

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 9

Work Order ID: 81284

81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

AN3C4A

Purchased

No

270

Each

3,645.000

66

66

AN3C4A

BOLT

**

66

(20)

12/04/25

Location

Loc Qty

Loc Code

ST350

3645

117688

5

118112

16

119749

10

120187 ✓

2000

120423

10

120521

510

120769

515

120799

123

120930

456

NAS1515H3L

Purchased

No

270

Each

188.0000

2

2

*NAS1515H3I *

WASHER

**

2

(20)

12/04/25

Location

Loc Qty

Loc Code

FG

40

102472

40

ST277

148

118686

3

119438

1

120072

44

120360 ✓

100

AN960C10L

*

NAS1149C0332 ✓

Purchased

No

270

Each

0.0000

78

78

*AN960C10I *

washer

**

78

(20)

12/04/25

121509 ✓

~~111742~~ ✓

March-12-12 3:54:37 PM

Shop Packet Print

Page 9

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 81284

81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

D3683-1 Manufactured No

270 Each 8,651.000 12 12

D3683-1

Insert

** 12 (20) 12/04/25

Location Loc Qty Loc Code

FP002 8651
36319 ✓ 8651

D3413-1 Manufactured No

270 Each 79.0000 1 1

D3413-1

Ring

** 1 (20) 12/04/25

Location Loc Qty Loc Code

ST420 21
70773 1
79233 20
ST464 58
76754 34
77940 2
80224 ✓ 22

AN4C5A Purchased No

270 Each 269.0000 1 1

AN4C5A

BOLT

** 1 (20) 12/04/25

Location Loc Qty Loc Code

ST355 269
112243 ✓ 169
119017 100

AN960C416 ~~AS~~ NAS1149C0463 ✓ Purchased No

270 Each 0.0000 1 1

AN960C416

washer

** 1 (20) 12/04/25

117735 ✓

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 81284

81284

Parent Item: D206-642-641

D206-642-641

Parent Item Name: Replacement Skidtube

Start Date: 12/03/2012

Required Date: 26/03/2012

Start Qty: 1.00

Required Qty: 1.00

D2646

Manufactured No

270

Each

138.0000

1

1

D2646

Aft Cap

1 **DP** 12/04/25

Location

Loc Qty

Loc Code

FP002

138

62678

5

68280

5

70945

1

71070

2

73294

1

73825

2

78018

26

79500

46

79562 ✓

50

MS27039C1-05

Purchased

No

270

Each

187.0000

12

12

MS27039C1-05

SCREW

12 **DP** 12/04/25

Location

Loc Qty

Loc Code

ST293

187

106574

12

107242 ✓

175

March-12-12 3:54:38 PM

Shop Packet Print

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Qty -041	Part Number	Description
X	D3288-041	SKIDTUBE ASSEMBLY
1	D2600-1-240	EXTRUSION
1	D2646	AFT CAP
1	D2647	CAP
9	D2649	CROSS BOLT SPACER
6	D3275-1	CROSS BOLT SPACER
2	D3286-1	DOUBLER
2	D3286-3	SPACER
1	D3289-041	FLOAT WEB
1	D3413-1	RING
1	D3415-041	NUT PLATE
1	D3535-15	WEARSHOE
1	D3535-21	WEARSHOE
1	D3535-35	WEARSHOE
1	D3535-41	WEARSHOE
1	D3536-15	GASKET
1	D3536-21	GASKET
1	D3536-35	GASKET
1	D3536-41	GASKET
7	D3537-1	WEARPAD
1	D3537-3	WEARPAD
12	D3683-1	INSERT
64	ALS7-1032-130	INSERT (or AKS4-1032-130, ALS4-1032-130, AELS-1032-130)
66	AN3C4A	BOLT
1	AN4C5A	BOLT
1	AN960C416	WASHER
78	AN960C10L	WASHER
2	CCR264SS3-3	RIVET
2	CR3212-4-03	RIVET
52	CR3212-4-04	RIVET
12	MS27039C1-05	SCREW (or AN3C3A BOLT)
2	NAS1515H3L	WASHER

GENERAL NOTES:

- MATERIAL: N/A
- FINISH: ACID ETCH, ALODINE ASSEMBLY PER DART QSI 005 4.1
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- IDENTIFICATION: NONE
- WEIGHT: 20.8 LBS
- DAMAGE TOLERANCE ON FWD BEND:
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 5 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
- BOND D3289-041 FLOAT WEB INTO D3288-1 OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015. ENSURE HOLES LINE-UP.
- ALL HOLES DRILLED ON CENTERLINES EXCEPT WHERE SHOWN
- DRILL Ø0.297 HOLES FOR D3683-1 INSERTS BEFORE FINISH. INSTALL D3683-1 INSERTS AFTER FINISH
- DRILL Ø0.297 HOLES FOR ALS7-1032-130 INSERTS USING DT3288-1T2 BEFORE FINISH. INSTALL ALS7-1032-130 INSERTS AFTER FINISH. SEAL WEARSHOE BOLTS WITH SIKAFLEX -241/291
- WELDING: PER DART QSI 004
- COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 81284 *MLJ*
12/03/12

RELEASED
9/18/06 AM

G	REFORMAT DWG, RMV LPS-3 (ZN B6-3) RMV C'BORE & ADD SECTION K-K (ZN C2-4)	CP	09.06.17
F	SUBSTITUTE FLOAT BAG INSERT W/SPEC CTRL DWG WAS ALS7-1032-130; IS NOW D3683-1	DC	07.11.21
E	MID-FLOAT HOLES WERE MOVED 2.00" FWD AND ROTATED INBOARD AND OUTBOARD BY 17° INSERTS ARE NOW INSTALLED AT THESE LOCATIONS	MB	07.09.14
D	DIMENSIONS ADDED	DC	07.06.04
C	NEW INSERTS, SS WEARSHOES AND GASKETS	PH	06.12.19
B	CHANGE INSERTS	CP	05.03.18
A	NEW ISSUE	CP	04.05.17
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>JP</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>JP</i>		
CHECKED	<i>JP</i>	DRAWING NO.	REV. G
MFG. APPR.	<i>JP</i>	D3288	SHEET 1 OF 4
APPROVED	<i>JP</i>	TITLE	SCALE
DE APPR.	<i>JP</i>	SKIDTUBE ASSEMBLY	NTS
DATE	09.06.17	<small>COPYRIGHT © 2004 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

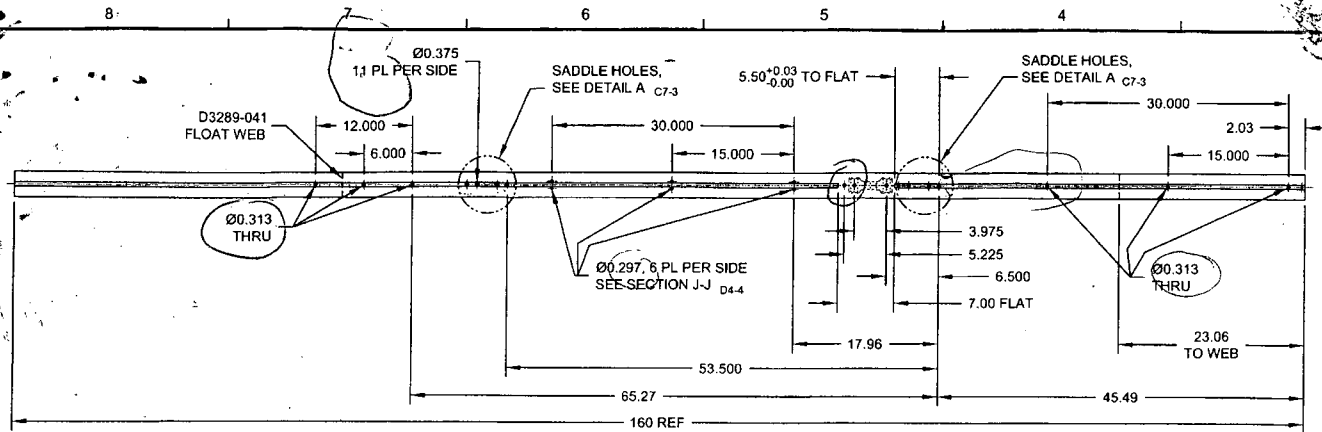
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

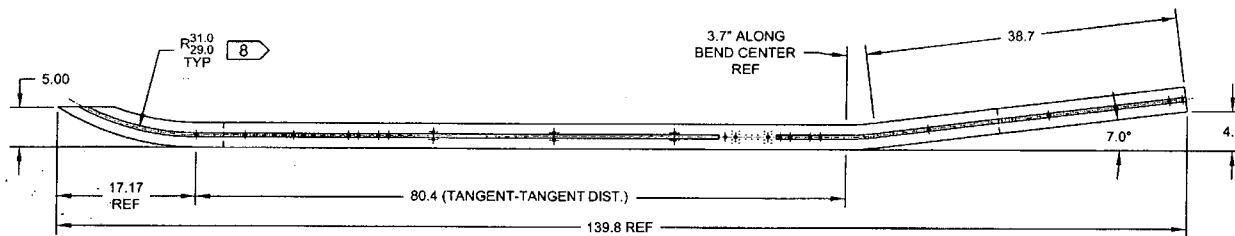
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

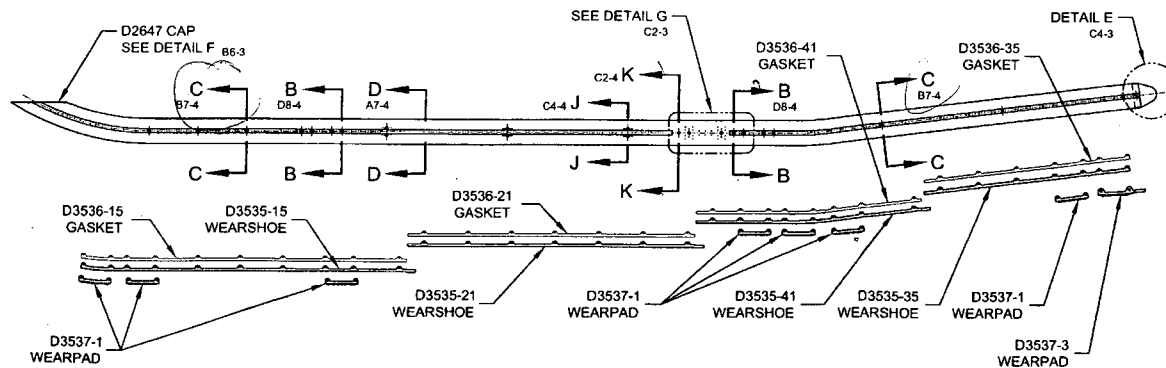
81284



D3288-041 DRILLING/WEB ASSEMBLY DETAIL



D3288-041 BENDING DETAIL



D3288-041 WELDING DETAIL/SKIDTUBE ASSEMBLY

RELEASED

DESIGN	9	DART AEROSPACE LTD	
DRAWN	9	HAWKESBURY, ONTARIO, CANADA	
CHECKED	13	DRAWING NO.	REV. G
MFG. APPR.	AN	D3288	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SKIDTUBE ASSEMBLY	NTS
DATE	09.06.17	<small>COPYRIGHT © 2004 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

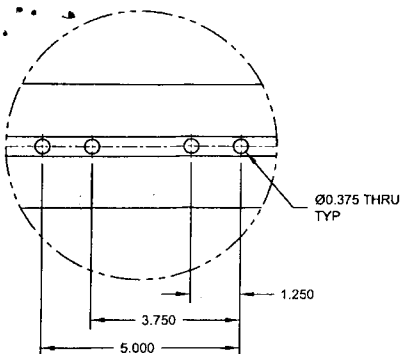
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

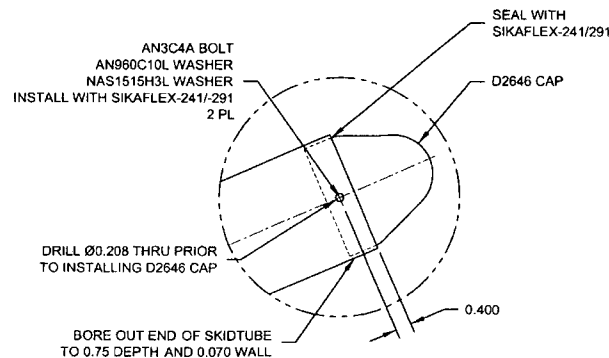
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

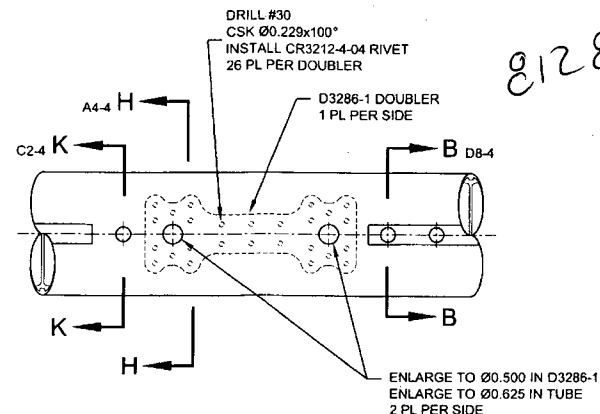
NOTE: Date & initial all entries



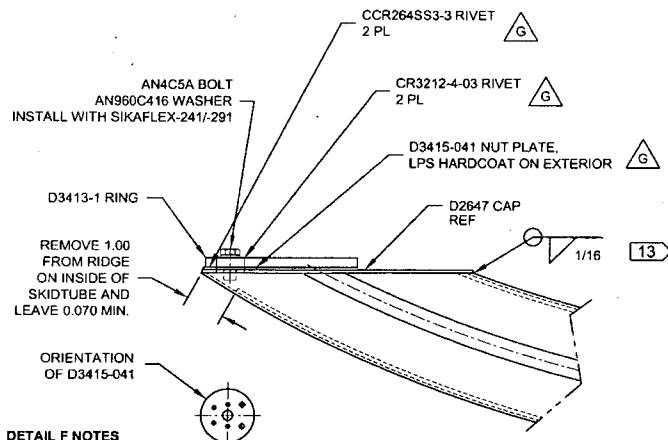
DETAIL A: DRILL DETAIL D6-2, D4-2
SADDLE HOLES, SCALE 5X



DETAIL E B3-2
SCALE 5X



DETAIL G B5-2
SCALE 5X



- DETAIL F NOTES**
1. CUT TUBE LEVEL
 2. REMOVE RIDGE ON FWD SIDE
 3. LOCATE D2647 (TRIM AS NECESSARY)
 4. WELD D2647 IN PLACE PER DART QSI 004
 5. GRIND FLUSH
 6. RIVET D3415-041 NUT PLATE IN PLACE
- NOTE: MASK THREADS IN D3415-041 PRIOR TO FINISH

DETAIL F: END FINISHING DETAIL B7-2
SCALE 5X

RELEASED
09/06/17

DESIGN	99	DART AEROSPACE LTD	
DRAWN	99	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. G
MFG. APPR.		D3288	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SKIDTUBE ASSEMBLY	NTS
DATE	09.06.17	<small>COPYRIGHT © 2004 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

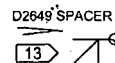
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

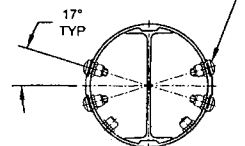


B7-2, B5-2, D1-3

SECTION B-B

FOR Ø0.375 SADDLE HOLES ONLY
8 PL, SCALE 5X

AFTER DRILLING AND BENDING
ASSEMBLY, PERFORM THE
FOLLOWING FOR Ø0.375
SADDLE HOLES ONLY:
1. CHAMFER HOLE 0.030x45°
2. INSERT D2649 SPACER
3. WELD INTO PLACE AND
GRIND FLUSH
4. C'BORE TO Ø0.313x0.75 DEEP

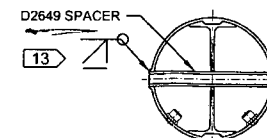


11

SECTION J-J

D5-2, B6-2
SCALE 5X

AFTER FINISH, INSTALL
D3683-1 INSERT
AND PLUG INSERTS USING
MS27039C1-05 SCREWS
AND AN980C10L WASHERS
12 PL

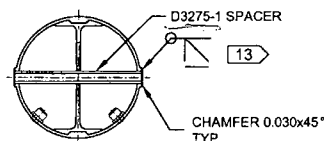


B5-2

SECTION K-K

1 PL, SCALE 5X

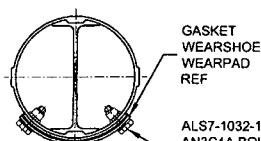
AFTER DRILLING AND BENDING
ASSEMBLY, PERFORM THE
FOLLOWING FOR THIS HOLE ONLY:
1. CHAMFER HOLE 0.030x45°
2. INSERT D2649 SPACER
3. WELD INTO PLACE AND
GRIND FLUSH



SECTION C-C

B7-2, B4-2
FOR Ø0.313 HOLES ONLY
6 PL, SCALE 5X

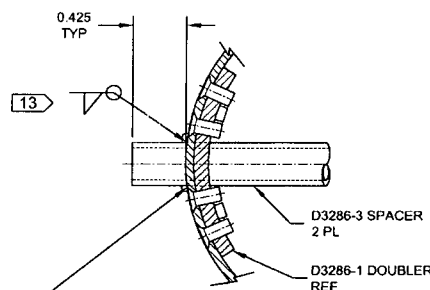
D3275-1 SPACER
CHAMFER 0.030x45°
TYP



SECTION D-D

B6-2
FOR WEARSHOES INSTALL ONLY
32 PL, SCALE 5X

GASKET
WEARSHOE
WEARPAD
REF
ALS7-1032-130 INSERT
AN3C4A BOLT
AN980C10L WASHER
64 PL



SECTION H-H

D3-3
NOT TO SCALE

TO INSTALL D3286-1/3:
1. GRIND OFF FLANGE IN AREA SHOWN, FLUSH
WITH ROUND TUBE
2. LOCATE & DRILL D3286-1 DOUBLER
USING DT3286-1T1
3. ENLARGE HOLES IN D3286-1 TO Ø0.500
4. ENLARGE HOLES IN TUBE TO Ø0.625
5. RIVET D3286-1 TO TUBE
6. INSERT D3286-3 SPACER
7. WELD IN PLACE AND GRIND FLUSH

RELEASED
09/06/17

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DRAWN	97	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. G
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 290

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 80956
Part number: A206-642-151
Description: Skid tube
Welding Process: Tig ☒ Mig ☐
Base material: Alum.
Current: AC ☒ DC ☐

TEST REQUIREMENTS AND RESULTS

Visual: pass ☒ fail ☐
Penetration: pass ☒ fail ☐

UNACCEPTABLE

Cracks: pass ☒ fail ☐
Undercut: pass ☒ fail ☐
Pin holes: pass ☒ fail ☐
Overlap (cold lap): pass ☒ fail ☐
Porosity (surface): pass ☒ fail ☐
Coloration: pass ☒ fail ☐

Qualifier David Kessel Date of Test Coupon 12.04.18
Welder Barclay Elliott Date of Test Coupon 12.04.18

The above named individual is qualified in accordance with AWS D17.1.2001 to weld